COURSE DESCRIPTION CARD - SYLLABUS

Course name
CAD systems in digital prototyping of technical objects [S1Eltech1>B-CADwPCOT]

Course

Field of study
Electrical Engineering

Year/Semester
3/6

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
30

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points
3,00

Coordinators

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Lecturers

Prerequisites

Basic knowledge of electrical engineering, electrical machines and system Windows. Basics of engineering structures at a general level. Ability to effectively self-education in a field related to the chosen field of study. The need to broaden their competence, willingness to work together as a team.

Course objective

Acquiring the ability to use software for computer-aided prototyping of technical objects and creating graphic documentation. Acquiring the skills of computer visualization of technical construction elements in two-dimensional and three-dimensional systems.

Course-related learning outcomes

Knowledge:
Orderly and theoretically grounded general knowledge in the field of key IT issues necessary for an electrical engineer. Basic knowledge of the graphic representation of the structure, knows the rules of the projection, creating sections, dimensioning engineering applications.

Skills:

He can formulate an algorithm uses a programming language and related software tools used in electrical engineering. The use of properly chosen development environments, simulators and software tools to support the design serving to simulate, design and analysis of simple electrical circuits.

Social competences:
Ability to act in an entrepreneurial manner in the area of electrical engineering.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Knowledge of the lecture is verified during the exam which consists of the task of checking the student"s skills. Passing threshold: 50% of points.
Project: Acquired knowledge is verified by completing a project task. Passing threshold: 50% of points.
Laboratory: Skills from laboratory exercises are verified on the basis of current tasks carried out during classes and control work. Passing threshold: 50% of points.

Programme content

Principles of computer representation of technical objects. Fundamentals of digital prototyping of electromechanical devices.

Course topics

Lecture: Basics of technical drawing in electrical issues. Basicis of creating and modifying technical documentation. Characteristics of modern CAD packages. Basic elements and tools of the AutoCAD program. Two- and three-dimensional issues in the computer graphic technology. Digital modeling and prototyping of technical objects. Project: Implementation of a design task using the AutoCAD program. Basicis of parameterization of model of technical object. Extracting design data and exchanging data between different CAD systems.
Laboratory: Parametric modeling of two and three-dimensional technical objects. Work with 3D models in terms of their visualization and preparation for simulation calculations. Creating technical construction documentation.

Teaching methods

Lecture: multimedia presentation, illustrated with examples, initiating discussions during the lecture. Additional educational materials for students.
Project: performing project tasks, initiating discussions during classes. Additional educational materials for students.
Laboratory: implementation of design exercises using the modeling and visualization tools learned.

Bibliography

Basic
1. Jaskulski A. Autocad 2016 / LT2016 / 360 +. Kurs projektowania parametrycznego i nieparametrycznego 2D i 3D, Wydawnictwo Naukowe PWN SA, Warszawa 2015
2. Folęga P.,Wojnar G., Czech P.; Zasady zapisu konstrukcji Maszyn, Wydawnictwo Politechniki Śląskiej, Gliwice 2014.
3. Chlebus E. Techniki komputerowe CAx w inżynierii produkcji, WNT, Warszawa 2000.
4. Documentation of AutoCAD system.
Additional
1. Documentation of CAx programs on websites.

Breakdown of average student's workload

	Hours	ECTS
Total workload	85	3,00
Classes requiring direct contact with the teacher	75	3,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,00